

1       1. In a system that receives a digital transmission, wherein the digital  
2 transmission includes digital data including video packets, audio packets and data packets, a  
3 set top box for receiving and processing the digital data, the set top box comprising:

4                  a tuning component for receiving the digital transmission, wherein the tuning  
5 component produces at least one channel, each at least one channel having digital  
6 data;

7                  an A/V/D unit for processing each at least one channel;

8                  a processing component including a browser operably connected with the  
9 tuning component and the A/V/D unit , wherein the processing component provides  
10 control functionality for the tuning component and the A/V/D unit; and

11                  a unified memory controlled by the processing component, wherein the  
12 unified memory satisfies memory requirements of the tuning component, the A/V/D  
13 unit, and the processing component.

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15       2. A set top box as defined in claim 1, wherein the tuning component  
16 comprises:

17                  at least one tuning and demodulating component for tuning and demodulating  
18 the digital transmission to produce at least one transport stream; and

19                  at least one transport module for producing the at least one channel from the  
20 at least one transport stream.

1           3. A set top box as defined in claim 2, wherein the at least one tuning and  
2 demodulating component comprises:

3                 at least one tuner, each at least one tuner tuning the digital transmission to the  
4                 at least one transport stream; and  
5                 at least one demodulator for demodulating the at least one transport stream.

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7           4. A set top box as defined in claim 2, wherein the at least one transport module  
8 comprises:

9                 at least one transport demultiplexor for demultiplexing each at least one  
10                 transport stream to produce each at least one channel; and  
11                 at least one descrambler for decrypting each at least one channel that is  
12                 encrypted.

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14           5. A set top box as defined in claim 1, wherein the A/V/D unit comprises:  
15                 an audio decoder for decoding audio packets of the at least one channel;  
16                 a video decoder for decoding video packets of the at least one channel; and  
17                 a data component for processing data packets of the at least one channel.

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19           6. A set top box as defined in claim 1, further comprising a conditional access,  
20 wherein the conditional access receives conditional access packets in the at least one channel  
21 and transmits the conditional access packets to a vendor system.

1           7. A set top box as defined in claim 6, wherein the conditional access receives  
2 decrypted keys from the vendor device for use in decrypting each of the at least one channel  
3 that is encrypted.

1           8. In a system capable of receiving a digital transmission having digital data  
2 including interactive content, video programming and audio programming over a digital  
3 system, a set top box for receiving and processing the digital data, the set top box  
4 comprising:

5                 one or more tuning and demodulating components for tuning and  
6 demodulating one or more transport streams contained in the digital transmission,

7                 each transport stream being capable of carrying the digital data;

8                 a transport demultiplexor operably connected to the one or more tuning and  
9 demodulating components for demultiplexing each transport stream output by the  
10 one or more tuning components to produce one or more channels;

11                 an A/V/D unit for processing the digital data of the one or more channels,  
12 wherein the A/V/D unit decodes the video programming and the audio programming  
13 and processes the interactive content of the one or more channels;

14                 a unified memory; and

15                 a processing component including a browser that provides the one or more  
16 tuning and demodulating components, the transport demultiplexor, and the A/V/D  
17 unit with access to the unified memory, wherein the unified memory is dynamically  
18 allocated to the one or more tuning and demodulating components, the transport  
19 demultiplexor, and the A/V/D unit according to their respective needs.

20  
21           9. A set top box as defined in claim 8, wherein the interactive content includes  
22 one or more of: digital video; digital audio; graphics; and Internet web pages.

1           10. A set top box as defined in claim 8, wherein each tuning and demodulating  
2 component comprises at least one tuner operably connected to at least one demodulator.

3

4           11. A set top box as defined in claim 8, wherein each channel is a video stream.

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6           12. A set top box as defined in claim 8, wherein the set top box further comprises  
7 a communications device.

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9           13. A set top box as defined in claim 12, wherein the communications device is a  
10 modem for connecting with the Internet over the digital system.

11

12           14. A set top box as defined in claim 8, wherein the A/V/D unit further  
13 comprises:

14                 a graphics engine for processing interactive content of the one or more  
15 channels;

16                 an audio decoder for decoding audio packets of the one or more channels;  
17 and

18                 a video decoder for decoding video packets of the one or more channels.

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20           15. A set top box as defined in claim 8, further comprising a conditional access  
21 component, wherein the conditional access component receives conditional access packets  
22 from the digital transmission and transmits the conditional access packets to a vendor  
23 system.

1       16. A set top box as defined in claim 15, wherein the conditional access  
2 component receives entitlement management message (EMM) packets and entitlement  
3 control message (ECM) packets carried in the digital transmission and provides the ECM  
4 packets and the EMM packets to the vendor system.

5

6       17. A set top box as defined in claim 16, wherein the conditional access  
7 component receives decrypted keys from the vendor system for use in decrypting each of the  
8 one or more channels having encrypted digital data.

1           18. In a system receiving digital transmissions having digital data  
2 including at least video content, audio content and interactive content, a set top box for  
3 processing the digital data, the set top box comprising:

4                 a tuning and demodulating component having a plurality of tuners, each tuner  
5 being operably connected with a corresponding demodulator, the tuning and  
6 demodulating component producing at least one transport stream from the digital  
7 transmission;

8                 a transport demultiplexor for receiving each transport stream output by the  
9 tuning and demodulating component, wherein the transport demultiplexor selects a  
10 channel from each transport stream, each channel comprising a serial bitstream of  
11 related packets, wherein the related packets comprise at least one of: video packets,  
12 audio packets, and interactive content packets;

13                 an A/V/D unit including a browser, wherein the A/V/D unit decodes the  
14 video packets, decodes the audio packets and processes the interactive content  
15 packets with the browser; and

16                 a processor providing a unified memory, wherein memory requirements of  
17 the transport demultiplexor, the A/V/D unit, and the tuning and demodulating  
18 component are satisfied by the unified memory.

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20           19. A set top box as defined in claim 18, wherein each of the at least one  
21 transport streams produced by the tuning and demodulating component comprises  
22 multiplexed channels.

1           20. A set top box as defined in claim 19, wherein the transport demultiplexor  
2 demultiplexes each of the at least one transport streams to select at least one channel.  
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4           21. A set top box as defined in claim 18, wherein the A/V/D unit is capable of  
5 producing at least one video output and at least one audio output for use by an end device.  
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7           22. A set top box as defined in claim 21, wherein the end device is a television  
8 capable of rendering the at least one video output and the at least one audio output.  
9

10          23. A set top box as defined in claim 18, wherein the unified memory is  
11 accessible by the A/V/D unit, the transport demultiplexor, and the tuning and demodulating  
12 component.  
13

14          24. A set top box as defined in claim 18, further comprising a conditional access  
15 component.  
16

17          25. A set top box as defined in claim 24, wherein the conditional access  
18 component comprises security means for ensuring that only authorized consumers obtain  
19 access to encrypted channels.  
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21          26. A set top box as defined in claim 24, wherein the conditional access  
22 component comprises an applications programming interface capable of interacting with a  
23 vendor supplied device such that conditional access packets are provided to the vendor  
24 supplied device through the conditional access component.

1           27. In a system having a set top box capable of receiving a digital transmission  
2 containing video packets, audio packets, and data packets including interactive content, a  
3 method for processing the digital transmission to produce video and audio outputs, the  
4 method comprising steps for:

5                 tuning the received digital transmission to produce a transport stream, the  
6 transport stream having at least one channel, wherein some of the at least one  
7 channel are encrypted;

8                 demultiplexing the transport stream to produce the at least one channel;  
9                 passing encrypted keys extracted from the at least one channel, through a  
10 conditional access, to a security system;

11                 receiving decrypted keys, through the conditional access, from the security  
12 system; and

13                 processing the video packets, audio packets, and data packets contained in the  
14 at least one channel with an A/V/D unit to produce the video and audio outputs.

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16           28. A method as defined in claim 27, wherein the step of tuning the received  
17 digital transmission further comprises the step of demodulating the received digital  
18 transmission.

19  
20           29. A method as defined in claim 27, wherein the step of passing encrypted keys  
21 further comprises the step of transmitting entitlement management message (EMM) and  
22 entitlement control message (ECM) packets to the security system.

1           30. A method as defined in claim 27, wherein the step of processing the video  
2 packets, audio packets, and data packets contained in the at least one channel with an A/V/D  
3 unit further comprises the steps of:

- 4                 decoding the audio content;  
5                 decoding the video content; and  
6                 processing the interactive content with a browser.

7

8           31. A method as defined in claim 27, wherein the step of receiving decrypted  
9 keys further comprises the step of decrypting the at least one channel if the at least one  
10 channel is encrypted.

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12          32. A method as defined in claim 27, wherein the conditional access comprises  
13 an applications programming interface, wherein the applications programming interface is  
14 accessible by the security system.